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ABSTRACT

This article examines recent research on full- and extended-day kindergarten programs held every day. Preceding the review are general comments concerning methodological concerns and a description of essential features of the literature. The review is organized in terms of specific end-of-year effects because administrators seeking justification for local programs will have particular goals in mind. Effects reviewed include: basic academic skills and social, emotional, and developmental considerations, such as fatigue, staff reaction, parent reaction, attendance, and socioeconomic and ability level differences. Also examined are studies concerning support service referrals and grade retentions; follow-up studies; financial considerations; enrollment benefits; and time schedules. Issues implicit in the literature are discussed; these include the new role of kindergarten for the academically weaker child and the questionable value of increasing instructional time. It is argued that the field needs to accept basic research prerequisites and minimum reporting standards. A list of 56 references concludes the document. (RH)

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# A Review and Critique of Research on Full-day and Extended-day, Every-day Versions of Kindergarten

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## Abstract

A review and critique of the research literature on full and extended-day, every-day versions of kindergarten was undertaken. Attention was drawn to methodological difficulties pervading the subject, and general weaknesses were identified. The proposition was presented that the field is seriously in need of accepting basic research prerequisites and minimum reporting standards. The broad range of program effects associated with full and extended-day kindergarten were reviewed independently. These included basic academic skills; social, emotional, and developmental considerations; staff reaction; parent reaction; attendance; socioeconomic or ability level differences; support service referrals and grade retentions; follow-up studies; financial considerations; enrollment benefits, and time schedules. Many of these areas contain supportive or highly suggestive results, e.g., basic skills gains, reduction of support sevices. At the same time, there is a potential for serious misinterpretation, e.g., cost analyses. Where possible, integration of work was attempted and areas particularly in need of extended research were cited. Discussion of the subject included notation of the spirit of promise and potential associated with this work, suggestions for advancing further integration and understanding of this general area, as well as observations dealing with the evolving redefinition of the role of kindergarten, and examination of the basic question of the value of extending instructional time as a major strategy to increase student performance.

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# A Review and Critique of Research on Full-day and Extended-day, Every-day Versions of Kindergarten

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Full-day kindergarten is making a major resurgence. Originated by Frobel and his American proponents as a full-day program, kindergarten was reduced to a half-day double session in the 1950s primarily for cost and space considerations. It was also widely held that five year olds did not have the developmental maturity for a full-day program. Recent data from the New York State Education Department (1985) show that the change in percent of students in half-day versus full-day from 1972-73 to 1984-85 has been from 9.5 to 55.1. This past school year witnessed the first time in recent state history when the majority of students were in full-time programs.

Reasons for the resurgence vary. Educators stress the acquisition of basic skills and the value of having additional time to attend to individual pupil needs (Gorton and Robinson, 1968, 1969; Gilstrap, 1970; Ross, 1976). There are also hopes of reducing grade retentions, and stemming the tide of special education and remedial placements (Herman, 1984). The growing number of working parents similarly express a need for a full-time kindergarten program (Salzer, 1982). The fact that a large number of schools have space available due to enrollment decline has enhanced the timeliness of the current trend.

Unfortunately, when administrators look to research for support of local plans they find the literature frequently difficult to access, poorly integrated, and many times conflicting. In addition, interpretations in some cases are seriously misleading.

This article will examine the recent research literature focusing

specifically on the full-day and extended-day, every-day versions of kindergarten. For purposes of general discussion, both versions will be covered by the term "full-day". Pre-kindergarten literature will not be examined although it is recognized there is a tendency to justify programs on this basis. After general comments regarding methodology and a description of essential features of the literature, a comprehensive review will be undertaken. The review will attempt to objectively assess findings, it will seek to integrate the subject, and it will press for implications for educational practice. Areas in need of further research or theoretical consideration will be cited.

## Methodological Concerns

It is important and appropriate that educational administrators look to research to guide the planning and development of local programs. Properly conducted field experimentation should ease the transfer of a researched program from the school district of origin to the local setting with reasonable confidence that the reported effects will obtain. This saves considerable time and expense. Why re-invent the wheel?

Yet how many planners have drawn upon research to find, particularly after a period of years, that the program did not yield the results that were claimed? After a period of disillusionment, the lesson becomes only too clear: don't trust the reported research; conduct your own field work locally.

Associated with the current trend for full-day kindergarten are claims that the value of the program is supported by research evidence. If this is so, then the research has provided a real contribution to educational and social policy. With full-day kindergarten however there

is an intuitive appeal which can be rationalized by turning to research for post hoc justification. This should make us additionaly cautious about the objectivity of our conclusions. If a program is implemented locally for the convenience of working parents to have full-time day care - and that is the stated reason - then there is no problem. Or, if it is viewed as "an opportunity to provide for the individual needs of students" (author's quote) with no other associated claims, again there is no problem. But if full-day kindergarten is to make a sustained contribution it cannot be "sold" on spurious claims. Part of this writer's motivation for the present review is that by making an objective assessment of the subject a tendency associated with so many other innovative programs hopefully will be prevented: high initial interest, then sobering acceptance of limitations, finally diffusion and disuse. Full-day kindergarten should not be relegated to a "fad."

A significant clue from the literature itself indicating that these cautions are not overstated is the simple fact that much of the work on this subject is grass-roots, that is, conducted at the local level. And, it is highly repetitive. It is as if each school district indeed feels the need to re-invent the wheel.

The purpose of this article is not a formal examination of methodology. But several further observations are in order before we can turn to a review. In general terms, research should satisfy two conditions: internal, and external validity (Campbell and Stanley, 1963). The former has to do with setting controls on conditions other than that being studied. Briefly, if these controls are not present, conclusions regarding cause and effect become clouded. If a study claims that the cause of the results cited is a full-day versus a half-day program yet there is no control, or adequate description

thereof, of curriculum, staff-ratios, class-size, parent involvement or other factors known or suspected to be contributory, how can we feel confident about these claims? Such a study is weak in internal validity. On the other hand, if there are limitations or difficulties regarding representativeness, e.g., students, curriculum, the study will lack generalizability or transportability. This speaks to external validity.

Unfortunately, much of the research suffers from serious problems of one or both of these methodological requirements. The bulk of the work is designed as local evaluation in contrast to independent research. Reports of studies tend to be brief, pay little attention to controls and representativeness, and claims are not infrequently made without presentation of data. Further, work in the field tends to be atheoretical, thereby lacking the power to explain the processes involved. For example, there is no work known to this writer relating the effects of full-day programs to models of school learning. What makes this particularly glaring is the fact that there are a number of well-developed models which stress the role of time, e.g., Carroll (1963), Cooley and Leinhardt (1975), and Bloom (1976). In a related sense, accessibility of reports is limited due to a significant number of unpublished or locally published works, the majority of evaluation designs are quasi-experimental or pre-experimental, and there appears to be virtually no awareness of differential effects of full-day versus extended-day programs.

## Review of the Research Literature

The literature reports a wide range of effects associated with full-day and extended-day kindergarten. The following review is

organized in terms of individual effects as it anticipated that administrators seeking justification for local programs will have particular goals in mind. The effects reviewed include basic academic skills; social, emotional and developmental considerations e.g., fatigue; staff reaction; parent reaction; attendance; and socioeconomic or ability level differences. All of these pertain to results at the end of the kindergarten year. Next, we'll examine support service referrals and grade retentions; follow-up studies; financial considerations; enrollment benefits; and time schedules.

Basic Academic Skills:

This is the area that understandably draws the most research attention. Accordingly, we'll review it first. The literature in this case is a relatively large number of studies which as late as 1984 was referred to as "inconclusive", e.g., Herman. This is truly unfortunate because, in general, defining full-day and extended-day kindergarten broadly as a wide range of components involving curricula, class-sizes and staffing-ratios, it contains a number of findings that are decidedly encouraging.

Chronologically, the literature tends to be relatively recent. Berson (1968), in an article entitled "The all-day kindergarten: opinions differ", presented a thoughtful argument basically indicating that full-day is not for everyone. The role of kindergarten, rather, should accomodate both educational and child-care needs. This position has not been fully addressed to date. The questioning tone of the article however appeared to establish a mind-set for some time to come. Some years later, Johnson (1974) provided experimental support for this mind-set by reporting no differences between a full-day experimental group and controls. Johnson's study contained serious program and

methodological weaknesses which were appropiately identified e.g., Cleminshaw and Guidubaldi (1979), Naron (1981). But the cloud of doubt remained. Meanwhile, Nieman and Gastright (1975, 1981a, 1981b) were beginning to report important research in progress in the Cincinnati Public Schools. Studying the effects of a combined program of preschool and full or half-day kindergarten on over 500 children, Nieman and Gastright obtained statistically significant gains on the Boehm Test of Basic Concepts, and dramatically large gains on the Metropolitan Readiness Test in favor of full-day. The kindergarten portion of the program took place during the 1970-71 school year. Unfortunately, there is no information given regarding the nature of their full-day program. This study warrants special interest because the two groups were empirically equated on basic skills- a much stronger design feature than the typical tendency of assuming equivalence. For this particular study, evidence of equated groups also offset the potentially serious fact that there was an approximate 30% difference in their two groups participating in the full year preschool in favor of full-day. Data is also provided (1975) on a smaller sample attending kindergarten during 1971-72. None of these students had preschool. Significant differences in favor of full-day on the Boehm were again revealed. We will return to the Nieman and Gastright study in connection with other program effects.

In 1978, a limited review of the literature was released by Beckner. This indicated that the subject was inconclusive. Nevertheless, Beckner then recommended that full-day kindergarten be implemented; a not uncommon characteristic of thinking in the field. Next, Alper and Wright (1979), in a study that's frequently cited, reported positive effects from a three month, five hour per day program.

Their evaluation measure was also the Metropolitan Readiness Tests. More specifically, "percentage gains...were substantially higher for extended day students" (p.68). The brief narrative report also indicated that experimental classes had 12 students while regular or comparison groups had an average of 25. Home visits were a key feature of this program. In terms of curriculum, "Teaching games and supplemental materials were used to reinforce and elaborate on regular kindergarten-taught concepts" (p.68). Oelerich (1979) also very briefly reported significant differences for full-day on the same measure. No program description was provided whatsoever.

Hatcher, Schmidt and Cook (1979) and then Hatcher and Schmidt (1980) supported the impression of inconclusiveness. The earlier study reported small increases but no statistically significant differences on the Metropolitan as well as personality and psychomotor measures. The 1980 review included Hatcher's 1978 doctoral dissertation which again found no differences on the Metropolitan. In attempting to account for this lack of program effects, Naron (1981) relates Hatcher's curriculum to the earlier Johnson study (1974). Naron states:

> ...Hatcher appears to compare an ordinary curriculum in a half-day program with the same curriculum stretched to fill a full day. It is not surprising that extended 'babysitting' time does not affect a child's achievement. It is the way time is used that is important (p.108).

At this point in time the research pace tended to pick up so that a number of reports were produced within a few years. In addition, their conclusions began to more consistently favor the benefits of full and extended day. For example, Adcock, et al (1980) in a carefully designed study involving a full-day schedule found statistically significant gains on all subtests of the Metropolitan. Adcock provided no program description. And Humphrey (1980), in another well thought-out project,

released results for two cycles of a full-day project. This took place during the 1978-79 and 1979-80 school years, and included class sizes in excess of 40. Each teacher had from one to two-and-a-half teacher assistants. It used the California Achievement Tests and the Boehm Test of Basic Concepts. Consistent findings in favor of experimental students were revealed. Of some interest in this study was the fact that the first cycle involved only a half-year program yet the results on the California were larger than for the second cycle full-year program. Humphrey subsequently reported follow-up results which we shall review shortly.

The Humphrey study is most important for present purposes. The design in this case was a direct extension of time. How this was used is described in a highly detailed and comprehensive report:

> In the full-day program there was more time for elaboration as each skill was developed. Further, as children succeed in mastering skills, the additional time allowed students to move forward toward more formal instruction (p.83).

Ostensibly, the use of time in this case is similar to other studies which, as we have seen, were mainly unsuccessful in obtaining significant results. While only based on impression, could it be that the difference in Humphrey's work lies in its being a carefully planned, academically oriented program? At any rate, this is an example of the possibility that gains can be produced without major program supplements, as seems to be characteristic of later work in the field.

Other reports issued shortly after Adcock and Humphrey did not add to this sense of optimism. McClinton and Topping (1981), for example, reported no differences for an extended-day program where additional time was also used to "extend the basic curriculum" (p.39). Harman (1982) meanwhile concluded essentially the same thing. Here, results were in the expected direction on the California, but the magnitude of

gain was not sufficient for statistical significance. Harmon's study likewise used an extended-day schedule but this is described simply as "more than two and one-half hours" (p.3). Warjanka (1982) released positive results at this time dealing with an extended-day program for students deficient in readiness skill development. But, serious design problems preclude further consideration of this work.

In 1982, Stinard also released a review of eight studies dealing with the full-day schedule. These were projects conducted during a ten year period and included Adcock, et al (1980), and Humphrey (1980) among others. Across all studies Stinard identified 33 achievement comparisons of full and half-day. Of these, 85% favored full-day, none favored half-day, and 15% resulted in no significant difference. This is a strong statement in support of full-day. Mitigating this conclusion is some question as to the selection criteria for the studies involved, as well as the fact that two of those included, i.e., Ziomek (1980, 1981) used an experimental group that was self-selected, that is, voluntary.

More recent studies have continued the trend in favor of full and extended-day. The Half Hollow Hills School District (1983) for instance reported significant gains on three measures: The Vane Evaluation of Language Scale, the Metropolitan, and the Boehm. Controls in this case were a prior kindergarten cohort. Similarly, Anderson (1983, 1985), using the Stanford Early School Achievement Test, found significant gains. This author however achnowledges that selection criteria had a role in producing the significant results. And Terens (1984) compared the effects of a 1983 full-day group with a 1982 half-day cohort. This reported stanine groupings observationally determined to be much in favor of project students. Program additions in Terens' full-day

project involved reduced class size and an expansion of their Hammondsport Readiness Program.

This review cannot claim conclusiveness but the picture is increasingly favorable. It is this writer's firm opinion that we may never move beyond this point until a better conceptual grip can be achieved of the interaction of time with other major program components, and until writers accept minimum reporting conventions.

Social, Emotional and Developmental Effects:

The effects included here cover a broad range. By far, however, the factor of fatigue as it relates to general developmental maturity has received the most attention. In most cases, the conclusion is that fatigue is not perceived to be a problem. With other developmental considerations, there are a number of reports based primarily on observation and surveys which support the value of additional time. The results are not universal nevertheless, and there may be some tendency for differential effects between full-day and extended-day.

Henshaw (1973) seemed to capture the tenor of opinion regarding fatigue with this statement: "Although teachers have noticed fatigue in some children attending the full-day session, parents have not felt this to be a problem" (p.125). Winter and Klein (1970) reported "signs of fatigue, frustration and waning interest ... did not materialize" (p.5). Zorn (1983) was concise: "it never happened" (p.25); Anderson (1983, 1985) noted that it tended to occur only in the beginning of the year, and "it was not a significant factor" (p.8). Not to be overlooked are the facts that many other countries in the world have full-day school for the child of kindergarten age (Oelerich, 1979), while the state of Hawaii has had it as a part of every elementary school since 1955 (Gorton and Robinson, 1968).

Terens (1984), in one of the most recent full-day projects, was concerned. In reporting of a generally positive project experience, developmental maturity is singled out for some relatively pointed remarks: "during the last hour of the afternoon, many children are tired, restless, inattentive and sometimes acting out" (p.5). Also in this connection: "the school nurse teacher reports many with various complaints" (p.5). At the end of the report Terens recommended a shorter day.

In other respects, the literature shows no statistically significant differences in social and emotional development as a result of full and extended-day programs. Hatcher and Schmidt (1980) for example report no differences on the California Test of Personality, and a psychomotor measure - The Valett Developmental Survey of Basic Learning Abilities. Similarly, Humphrey (1980) found no differences on an observation scale involving friendliness, confidence, and shyness and uncertainty.

At the same time however, there are a range of suggestive reports. Henshaw (1973), for instance, had this to offer regarding project students: "the children appear more relaxed, friendly, and able to meet people outside the classroom" (p.125). Mason (1977) stated observations from a Kansas City project initiated in 1970: "participitating teachers agree that shy and withdrawn children especially profit from the extra time and gain strength and confidence through the program" (p.36). Anderson (1983, 1985) included results from a parent survey showing decidedly favorable perception of extended-day students in the areas of self confidence, independence and ability to work/play with others. These results are qualified by the fact that one of Anderson's two project groups were "the most mature entering kindergarteners" (p.2).

The Bay Shore School District (1983), based on a series of visitations, indicated "it bred independence and improved self-image" (p.3). And Bourque (1984) reported that staff felt "significant gains" were shown by project participants in "ability to follow directions, listen attentively, work independently, complete tasks in a reasonable amount of time, express themselves verbally, and develop fine and gross motor coordination" (p.7). Other than the comments above regarding fatigue, there were no studies reviewed by this writer that cited negative effects concerning social-emotional development.

Hatcher and Schmidt (1980) appropriately call for more refined measures to be included in program assessment. These would include the "ability to observe, discover, generalize, experiment and solve problems ... to express thoughts and feelings more creatively through language, movement, music and art" (p.16). The field clearly lacks a full range of psychometric tools to make detailed distinctions. But at the same time, program designers are reluctant to specify such skills as deliberate objectives of their programs. It is judged to be not coincidental that none of the studies included in this review made such predictions.

Staff Reaction:

Results in this area again are supportive but not universal. Terens (1984) acclaimed the reaction of first grade teachers, special teachers and administrators was "overwhelming positive" to their program. At the same time Terens concluded that their full-day program was too long. Barbato (1980) described the reaction of his staff as "enthusiastic". Other reports simply indicate, at times as a brief notation, that staff favored full-day, e.g., Henshaw (1973), Half Hollow Hills (1983). None of these studies document their conclusions with

data, although Half Hollow Hills presents survey data in raw unanalyzed form.

Humphrey (1980) interestingly reports that whereas full-day teachers had a favorable reaction, first grade teachers were "undecided". This is apparently conflicting with Terens (1984) and McClinton and Topping (1981). The conclusion of the latter study is noteworthy because it is based on a strong experimental design. These investigators had first grade teachers who were unaware of the purpose of the study and whether their students were full or extended-day complete rating scales. The scale involved academic ability and social adjustment, and prior to being used it was piloted and subjected to a reliability check. Statistical testing revealed that the first grade teachers judged students coming from extended-day classes to be more capable than those from regular kindergartens.

Anderson (1983, 1985) indicated that two project teachers favored their program whereas two comparison teachers "felt some additional time was helpful." Anderson also noted that the extended-day was "stressful" for project teachers. Stressfulness was interpreted primarily in terms of the time needed for planning and preparation of materials. As Anderson explained:

> The problems associated with organizing a large group of five-year olds to work independently during 60 minutes of a 90-minute reading period are clearly not trivial problems. The presence of an aide in these classes would appear to be beneficial (p.24).

Even with this elaboration, one has to wonder if the matter is not overstated. That additional time is needed, particularly in the beginning stages of a new program, is not doubted. But whether this experience is most aptly described as "stressful", especially within the context of having had to prepare for <u>two</u> groups of students, appears

suspect. Other available studies seem clear on this point. Henshaw (1973) wrote "Teachers have said they feel less pressure to get everything worked into the days schedule" (p.125). Bourque (1984) commented "the classroom atmosphere is more relaxed and both the teaching and learning pace is more comfortable" (p.9). Similarly, Herman (1984) observed that meeting the needs of two half-day groups was "physically and mentally exhausting" (p.15,16).

The survey by the Wisconsin State Department of Public Instruction (1980) included staff who had not at the time participated in these programs. This reports that of teachers currently involved in half-day programs, if given a choice, 73% preferred that program while 7% would elect full-day. Of teachers involved in full-day, 50% preferred that choice while 9% would elect half-day. With principals, of those currently involved with half-day, if given a choice, 83% prefer that program while 8% would elect full-day. Conversely, 94% of those having full-day prefer that choice while 6% would prefer half-day. These results are based on relatively small samples, e.g., there were 12 principals representing half-day classes. But they are provocative in that the differences are not nearly as great as one might anticipate. The Wisconsin report offers an important explanation: "the majority of teachers ... preferred the program they were working in" (p.12). This is exactly the interpretation that the social psychological principle of cognitive dissonance would have predicted.

This literature suggests that while both full-day and extended-day programs receive the support of participating staff, some may feel full-day is too long. In addition, there may be some teacher stress related to additional responsibilities involving preparation and planning. Close contact with full-day or extended-day, or direct

participation, is the important factor in determining favorable staff attitude.

Parent Reaction:

The conclusions of research in this area tend to parallel staff reaction quite closely. The first is that parents of students directly involved in full-day and extended-day programs tend to be strongly in favor of them. Where details are available, studies indicate this runs at least 90% support. With parent surveys asking for a choice, for example, Humphrey (1980) reported 92%, Half Hollow Hills (1983) indicated 91%, Bourque (1984) showed 97% while the Wisconsin report cited "nearly 100%". An important qualification is that there are repeated indications some parents regard full-day as "too long", e.g., Terens (1984), Henshaw (1973), Barbato (1980), Alper and Wright (1979), and Anderson (1983, 1985) include at least notations in the same direction. Parent reaction, indeed, is one area where it can be concluded that research support occurs most consistently. The fact that this occurs across a wide range of program variations acts to strengthen the generalization. And, the support is consistent for full-day and extended-day - with the qualification noted.

School administrators faced with the challenge of parent concerns might well follow the lead of Hess (1978). In a thoughtful airing of both sides of the general issue concerning the amount of time a child spends at home or at school, Hess paraphrases the advise of Edward Zigler, noted developmental psychologist: too much debate is being devoted to the surface issue and not enough to designing quality school programs. Hess also gives a number of useful suggestions for building closer cooperation between home and school.

The other conclusion paralleling staff reaction is that parents not

directly involved in current programs are much cooler or reserved in their support. Three studies bear directly on this point. The Wisconsin study surveyed parents of the three incoming cycles of kindergarten students. When asked for their preference, 73% indicated half-day, 8% said full-day, while the remaining preferred another schedule. Salzer (1982) concentrated on the subject of parent reaction. Based on surveys in 1980 of three western New York State school districts which did not have full-day programs, Salzer found a range of 30 to 40% opposed to the idea. Ziomek (1980) included results from a parent survey also. In this case, the parents of half-day students were asked if they preferred full-day. 50% responded- no. All studies stressed two particular reasons: parent estimation that their child did not possess the developmental maturity to cope with a full-day, and the preference for mothers to maintain a close relationship through the additional time their child spends at home.

As results from the previous section of this review indicated, evidence regarding the conditions associated with fatigue is unclear. There is probably less risk of this occurring in an extended-day program. But the answer seems to lie in the interaction of schedule and curriculum, e.g., how much engaged time versus how much time for rest, stories, and unstructured activities.

Attendance:

Considering the fundamentally important role of student attendance, it is both somewhat surprising and disappointing that this effect has not been the focus of more concerted attention. There are at least two opposing lines of thought in need of clarification. One would argue that being as full-day is more convenient for working parents there should be an increase in attendance rate to reflect this scheduling

advantage. The other would emphasize that some decrease should be anticipated in as much as parents will be more inclined to keep home those youngsters presenting complaints of illness; in other words, who are at risk for completing a full day.

Only one study reports data on this subject. The comprehensive Humphrey study (1980) considered two aspects of student attendance. One dealt with the concern that full-day was more tiring than half-day kindergarten, causing more illness or absences toward the end of the week. Records were monitored over a 27 week period. No differences in the weekly pattern of attendance were revealed upon statistical analysis.

The second aspect was the over-all rate of absenteeism. Information from the same time period indicated full-day students performed slightly better, that is, incurred 8.5% absenses versus 10.8%. Thus, we have a preliminary yardstick of about a 2% differential.

These results are encouraging as they suggest there is no pronounced tendency for parents of full-day students to keep home those who are at risk of being ill. Nevertheless, substantiation is needed over the full school year. A parent survey of both presently enrolled and past kindergarten students would be an excellent means of further exploring this issue. Included should be a reaction to possible differences between full-day and extended-day schedules.

Effects on Socioeconomic and Ability Levels

Winter and Klein (1970) examined the effects of extended-day on educationally advantaged and disadvantaged groups. The curriculum involved a regular kindergarten program in the morning supplemented by an additional 90 minute period of structured activities in the afternoon. The afternoon sessions were tutorial in nature. Parent

contacts were also stressed. Educational disadvantagement was defined as the lowest 10% on the Peabody Picture Vocabulary Test and the Lee-Clark Readiness Test. The educationally advantaged by contrast were those who scored "average or above" on these tests and who were considered by their teacher to be "most ready" (p.10). Winter and Klein attained results favoring both groups of experimental students but most noticeably for the educationally disadvantaged. Sample size is an issue in this study; for example, there were 13 students in the experimental disadvantaged group.

Terens' program (1984), while not specifically designed for academically weaker students, obtained results which suggest it may have had a particular impact on this group. By comparing score distributions on the California Achievement Test for two successive years it was observed that fewer students fell into lower and middle stanine groupings while more fell into the higher stanines after the intervention of full-day. Terens interestingly associates these effects not only to full-day but to the use of music and physical education programs to reinforce instruction, and expansion of their Hammondsport curriculum. This is one of the few times the literature offers direct clues regarding causal connections among program components.

Lysiak & Evans (1976) included socioeconomic status (SES) as one of the variables in their study. The others were curriculum variations, and ethnicity. The curricula examined were Lippincott's Beginning Program, Alpha Time, Getting A Head Start, Follow Through Model, a local curriculum, and the Bilingual Model. The outcome measure was the Metropolitan. The study took place during the school years of 1973-74 and 1974-75. Using sophisticated means of statistical control, they found three points of current interest: 1) full-day was more effective

for low SES children across all curricula; 2) there were no differences between full and half-day for middle SES students; and 3) only Lippincott and the local curriculum interacting with full-day were significant for high SES students.

This study is rich in its implications. For instance, it appears to underscore the value of full-day for low SES students. It likewise offers a number of suggestions regarding the interaction of a full-day schedule with curricula variations for middle and high SES students. Very clearly it brings us back to the fundamental point that in order to maximize gain we must systematically vary instruction on the basis of recognized group differences.

Support Service Referrals And Grade Retentions:

There appears to be little doubt currently that one of the important reasons for considering the implementation of a full-day program is to strengthen a district's preventative posture. In this light, data on its effect on special education referrals, remedial referrals and grade retentions is particularly sought.

Nieman and Gastright (1981) are one of the only two available sources of specific information on this subject. Their reported findings are encouraging. More specifically, at the end of grade 8 special education referrals were reported as 11% for half-day and 5% for full-day while grade retentions were 12% and 9% respectively. Because their program included a full year of preschool, conclusions are possible only regarding the differential effect. This suggests that full-day can reduce special education referrals by about 6%, and grade retentions by about 3%. Humphrey (1983) did not have a two year program so we can look at his results in an absolute and relative sense. His information however pertains solely to grade retentions. At the end of

grade 3, Humphrey indicated that 19% of half-day students while 9% of their full-day counterparts were retained in grade. This is a 10% differential. A figure of this magnitude can have substantial practical implications. But, questions are raised regarding why Humphrey's retention figures should be so much higher- particularly in light of their coming from an earlier grade. Is this partially due to the absence of a year of preschool? Is it attributable to the volatile and unreliable nature of this type of data? Or, were the educational characteristics of the students in the two studies different?

The area of support service and grade retentions is most promising for those educators who seek to develop the position that full-day kindergarten can be a sound financial investment. In addition, current findings appear to present a preliminary reference against which subsequent research can proceed.

Follow-up Studies:

The question of sustained effects is understandably of major importance. While one might theoretically wonder how gains from any form of short-term intervention can be maintained without reinforcement - particularly in the field of compensatory education where extensive experience has consistently shown a progressive diminution in basic skills with time - it is still a highly attractive feature that seems to be half-expected by most practitioners.

The literature bearing on this issue reveals some conflicting but favorable findings while at the same time available data is clouded by methodological weaknesses. Johnson (1974) for example, found no differences at the end of grade 1. And, while this study's limitations have already been cited, McClinton and Topping (1981) report the same thing. Notably, this conclusion pertains to basic achievement skills.

As indicated previously, McClinton and Topping also found that first grade teacher perception favored the value of an extended-day program.

Positive evidence is strong though flawed. Winter and Klein (1970) found positive results at the end of grade 1 on the Stanford Achievement Test. However, the follow-up comparison for the educationally disadvantaged group involved only four extended-day students and six controls. Humphrey's thorough study of this subject is reported at the end of grade 1 (1980), and the end of grades 3 and 4 (1983). In the earlier grade, reading skills as measured by the Gates MacGinitie were statistically significant in favor of full-day. The findings for grades 3 and 4 involved the two cycles of project students. Full-day revealed significantly higher performance on the Piers-Harris Children's Self-Concept Scale, in report card grades and conduct marks, no differences for either cycle were found in attitude toward school, while half-day was significantly higher on a measure of handwriting. Both full-day cycles also sustained their superior skills on the Gates MacGinitie, and scored significantly higher on three of five subtests on the Comprehensive Tests of Basic Skills, namely, Vocabularly, Reading Comprehension, and Math Computation. In addition, attitude surveys of parents and teachers continued to reveal strong support for the full-day program. The difficulty with Humphrey's findings is that a substantial attrition rate was evident, approximately 50%, with no control or testing to determine student representativeness. The tacit assumption that both project and control follow-up groups were comparable is highly tenuous.

Mueller (1977) examined third grade achievement and scholastic aptitude scores as a result of various combinations and years of intervention ranging from preschool through grade 2. In connection with

a comparison between full and half-day kindergarten, Mueller found a differential of five grade-equivalent months, that is 2.3 versus 2.8, in favor of full day on the Total Reading score of the Metropolitan. On the Kuhlman-Anderson Mental Ability Test the mean Verbal IQ for half-day was 90; for the full-day group it was 96. No inferential statistics were applied in either instance.

Nieman and Gastright (1981) report the longest enduring gains in the literature. Their follow-up involved reading and math achievement at the end of grades 4 and 8. In this case, Nieman and Gastright were able to locate 70% of the 4th grade group and 50% of the 8th grade group, and for both grades they were able to prove experimental and control equivalence on a kindergarten pre-test basic concepts measure. Both 4th and 8th grade follow-up project students scored statistically higher than controls.

None of these studies account for the intervening circumstances over the years for their follow-up groups. The tacit assumption is that there was no additional differential intervention, and hence that the follow-up results are a direct consequence of the original project experience. With the rapid expansion of a range of special programs and curricula nationwide during this time interval, at times implemented selectively even within districts, this amounts to a major assumption.

In terms of full-day and extended-day differences it is perhaps circumstantial that Johnson, and McClinton and Topping were extended-day programs while Humphrey, and Nieman and Gastright were full-day.

Financial Considerations:

A number of reports address this important issue. The bulk of these attempt to support full-day by mitigating the cost differences between full-day and half-day without the benefit of full-scale cost

analyses. The distortions can be serious.

Herman (1984) for example, indicated there can be savings in bus transportation, and crossing guards would not have to be hired for the end of the morning session and for the beginning of the afternoon session. In addition:

> ... costs for supplies and maintenance need not increase and may even decrease, because fewer children will be using each room and its equipment ... costs for meals will not greatly increase, because the noon meal could replace the two sets of snacks usually provided in the present half-day situation. Also, in many communities, the state or federal government subsidizes school lunches but not snacks (p.16).

Anderson (1983) states that full-day "did not involve any costs beyond those associated with the operation of the basic 180 minute programs" (p.23). Presented without elaboration, this statement appears incongruous. More realistically, Gorton and Robinson (1969) indicate that initial greater cost can be expected but this "is essentially offset". The offsetting factors mentioned are: 1) full state aid; 2) savings in transportation; 3) less supply and maintenance costs.

The most detailed cost analysis this writer has been able to identify was conducted by the Wisconsin State Department of Public Instruction (1980). Total cost figures are shown for full-day and half-day programs using the following factors: number of teachers, salary and fringe benefits, transportation, cost for instructional materials, library materials, and cost of teacher aides. For the school years 1981-82 and 1982-83, full-day incurred 20 to 24% additional cost. Importantly, this did not include any estimates for program gains or benefits. In the area of instructional supplies and materials, it was also not in keeping with suggestions of no cost.

Zorn (1983) provides administrators with a practical approach to dealing with the challenge of start-up costs. Describing his program in

the Poland, Ohio School District, Zorn was able to implement full-day at no extra cost. Essentially, this involved having a regular AM half-day program supplemented by a voluntary PM program supervised by aides. The PM session combined the two morning classes, and was described as "day care" in function. In addition, parents were charged a $100.00 fee. At the time of his article, Zorn did not have conclusions regarding program effects.

At the present time, therefore, the cost of full-day kindergarten needs further delineation. Generalizations must be approached cautiously because of the wide range of components associated with some programs, e.g., additional support personnel, and because class-size recommendations are frequently closely tied in with program development. There are no cost analyses available regarding differences between full and extended-day programs.

Researchers approaching this subject would do well to consider paralleling the excellent analysis conducted by the Perry Preschool Project (Weber, 1978; Berrueta-Clement, 1984). Another study warranting consideration is Naron (1978). This attempted a cost analysis of a proposed prekindergarten screening and intervention program for the Chicago School District. Special education costs were the target. Naron's model of five factors is directly applicable to kindergarten. In generalized form, this is as follows:

Let SS = the annual cost per child of special services for those students not reveiving intervention e.g., special education, remediation, retentions;

YS = the number of years each child without intervention will require special services;

I = the annual cost per child of intervention;

YI = the number of years the child with intervention will need special services; and

SA = the savings per child exposed to intervention.

Therefore, SA = (SS x YS) - (I x YI).

This model requires the assumption that a child who receives intervention is not likely to require special services later in school. If this assumption is not acceptable, a cost factor would have to be added to the right side of the equation. Using this model with a cohort of 40,000 students, Naron estimated a savings in special education costs exceeding $1,500,000. each year.

Enrollment Benefits:

Three reports cite the possibility of enrollment gains associated with implementation of full or extended-day programs. Anderson (1983) suggests that they encourage the return of students enrolled in private programs primarily because they accomodate the needs of working mothers. Anderson does not state, but it is clearly assumed, that the fact of no related cost is closely tied in with this reasoning. Zorn (1983) has a similar opinion. He observed that a number of parents were sending their kindergartener to private full-day programs. "Many of them were from families whose children had always gone through our schools" (p.23). Herman (1984) agrees, and adds "...once enrolled they tend to keep them in these schools, never to return to the public schools" (p.11). Bourque (1984) interestingly shows data indicating projected enrollment at the time of program development and then upon actual enrollment. A 14% increase was evident which is attributed to the value of full-day for parents. A parent survey was undertaken as part of the program evaluation design, and comments are included in support of this point.

For those school districts where enrollment decline is interpreted as a negative phenomenom, that is, requiring staff reduction and the closing of buildings, full-day kindergarten, despite its extremely varied form, presents a distinct possibility as a means of "enrollment recovery". There can be no question that one factor operating in the national public school enrollment decline has been the lack of responsiveness to wide-scale cultural and social change. Private schools have gained enrollment in part because of their greater flexibility, viz., instituting full-day programs. Now, a portion of this gain is being recouped by public schools possessing the initiative to respond to social need.

Effects on Time Schedules:

This is a most important area not only for its obvious instructional implications but because it offers significant clues regarding causal relationships. Time distribution may indeed represent one of the dimensions by which all kindergarten programs could be compared, and program effects most accurately predicted. On a more mundane level, it is the area a number of professional educators zero in on in admitting to having doubt about the advantages of full-day. This doubt typically is expressed in a question such as: What instructional time does full-day add to a half-day program?

Available research provides some clues but it also raises many questions. Using a structured observation technique for example, Anderson (1983) first determined the amount of allocated or scheduled time for its extended program and comparison classes. By observation the percent of engaged time as defined by on-task behavior was calculated. This revealed that in reading and language arts the extended-day classes were engaged 70% while comparison classes 64%. In

math, both groups revealed an identical 84%. By multiplying the amount of allocated time by the percentages, Anderson was able to conclude:

> Engaged time in reading/language in project classrooms is two and one-half times greater than in comparison classes and in mathematics engaged time is about fifty percent greater in project classes than in comparison classes (p.8).

This clearly shows where the power of full-day programs can lie. Unfortunately, Anderson offers no clues why project and comparison classes were different in their percent of engaged time in one subject but not the other, and why math should be so much higher.

Ziomek (1982) offers other suggestions. This study included a comparison of the pattern of instructional activities in their extended and half-day classes. Using a structured daily log as their instrument, they collected data from three one week periods during the course of the school year. Teachers were instructed to record the time devoted to the teaching of each subject, the time of day, the type of instruction, i.e., introduction, application, or reinforcement, and class involvement, i.e., whole class, small group, or individualized. Three main observations were made: 1) The predominant mode of instruction for both groups was whole class; 2) introductory activities occupy the highest percentage of instructional time in half-day classes on Mondays whereas they occur throughout the week in all-day; and 3) all-day was involved in more application and reinforcement instructional activities. Ziomek also stressed the instructional flexibility their extended program provided. Limitations in the aggregation and presentation of data in this report preclude other possibly valuable conclusions.

The report by the Wisconsin State Department of Public Instruction (1980) examined time usage in full-day and half-day programs somewhat differently. Here the distinction was made between "instructional" and

"unstructured" time. A list of the activities included in the division is provided and most areas seem self-evident but the assignment of a few unfortunately is unclear, e.g., "Story hour", "art", "Library Skills Class". Keep in mind that this division refers to allocated time only. It was concluded that half-day had 80.5% instructional time whereas two groups of full-day had 57% and 60.5%.

This report makes no attempt to associate these results to particular program effects, once again pointing up difficulties in eliciting from the literature which combination of program components are related to which effects. It might be hypothesized that "instructional" time is essential in basic skill acquisition as measured by standardized tests while "unstructured" time is important for socio-affective objectives. This information would be consistent with the perceived goal of many full-time kindergarten teachers, namely, attending to individual needs.

## Discussion

A number of issues and observations emerge from the present review. Only a limited number of them, however, can be pursued within the context of this remaining section.

Paramount is the sense of promise and potential which pervades the field. Indeed, clearly evident is a spirit of hope associated with this work which is similar to that surrounding the introduction of Headstart 20 years ago. What is not clear, and at times decidedly conflicting, is a firm picture of the particular conditions responsible for the manifestation of each effect. Problems with internal validity, in other words, are particularly pressing. This should be pursued vigorously and as soon as possible because we still need to deal with more complex

matters concerning how much of which condition will produce the amount of gain we wish. Kindergarten research should not be approached within the limited view that one year of additional time using a program that's basically an extension of the regular curriculum will produce the type and magnitude of gain which will be rehabitatively sufficient. Indeed this writer has been at times amazed at the ambitious and even naive outcome expectations of some studies. Many school districts are currently exploring combinations of intervention such as preschool and full-day kindergarten or full-day kindergarten and a transitional first grade. Notable among these is the Cincinnati Public Schools (Mueller, 1977; Nieman & Gastright, 1981a; Nieman & Gastright, 1981b). The long-term view should think in terms of two and three year interventions.

The present review has sought to establish a minimum research base of the scope of major effects. But even where we have preliminary conclusions corroboration is needed to strengthen generalizations. And this will be no easy task as most effects defy replication and extension because of methodological and reporting difficulties already cited. Limited resources in addition will continue to force school districts attempting research of this kind to maintain conservative strategies. Obviously needed therefore, are select, large-scale studies undertaken by enterprises primarily research in function.

Further analysis of the present literature would be most useful. Effort is needed to catalogue or dimensionalize existing works by major variables. If sample characteristics, type of curriculum, staff ratios, etc. were organized for ease of comparative study, clearer conceptual understanding should emerge. Application of existing theoretical models to this particular information would appear especially fruitful. In

short, the field of kindergarten research is currently greatly in need of systematizing and formal theoretical effort to provide it with direction. This is essential if we are to go beyond the redundant nature of present work and build toward higher levels of understanding.

Two remaining observations will suffice for the present review. One deals with the continuing evolution in the reconceptualization or redefinition of traditional kindergarten in more recent years, while the second has to do with a basic question of the value of increasing instructional time in an educational program.

One of the strong impressions emitted by a historical reading of the present literature is that, particularly for the academic weaker child, kindergarten is progressively acquiring a distinctly new role. Earlier studies, in this case meaning during the mid-to-late 1970s, seemed to view their program as an opportunity to expand in the direction of long-standing early childhood goals, e.g., in self-care, in social adjustment, in the creative value of play. The broad goal was enrichment in a more lateral as opposed to vertical sense. Curriculum design in implementating full-day or extended-day schedules at this time seemed primarily to return the early childhood role to the kindergarten teacher with the exception that parent involvement was emphasized along with the use of volunteers to maximize individualization.

Very possibly as influenced by the strong confirmation coming out of later interpretations of the Headstart data, e.g., Lazar, et al (1982), and then as carried by the influential Perry Preschool Report (1984), the compensatory and preventative possibilities of expanded kindergarten time were entertained. For budget-minded school administrators faced with growing remedial and special education populations, kindergarten slowly emerged into a cost-justifying

alternative to reduce the escalating price of public education. It is still developmentally early enough to take advantage of the rapid growth theorists have been emphasizing, the program is under local jurisdiction and control - as opposed to private early education programs, and it occurs at a point in the instructional sequence which some contemporary educators still regard as only loosely connected to their formal curriculum scope and sequence. In this corrective orientation curriculum design is increasingly absorbing aspects of compensatory preschool education while simultaneously incorporating the full complement of remedial and other support services that are now familiar to public education. From this perspective it is entirely logical to find a remedial reading teacher in the kindergarten classroom. And with this qualitative change in role, it should also be understandable why an increasing proportion of more recent reports are showing significant gains - particularly in the basic skills. This is not a universal tendency as it is recognized there remains a staunch group of developmentalists who in fact seek to delay formal instruction, e.g., Mulrain and Ames (1979), Moore (1985). There are also serious questions remaining about the educational need of full-day for students with average and above average skills. It is stated simply as an observation of a significant movement in kindergarten education.

The second issue the present writer experienced in examining the literature deals with the basic question of the value of increasing instructional time as the prime strategic feature. This grows not so much out of a concern for attempting to cast doubt on a positive experience for children as much as it seeks to dispel the belief that a singular solution has been found to correct a range of educational difficulties.

Time and learning have been part of the educator's consciousness for at least the past two decades thanks to Carroll's revolutionary model. We have also come to know more fully that allocated time and engaged time carry vastly different implications. On one level, we have not yet determined what a full-day program yields in addition to a half-day regarding this significant factor. Anderson's work (1983, 1985), for example, is particularly suggestive of the value of full-day. But too many questions remain at this time. Taking the Wisconsin results without qualification leads to the conclusion that half-day has proportionally more instructional time. But the critical question appears to involve absolute as opposed to relative differences. Other available work has to be regarded as preliminary.

On another level we are just beginning to learn of the limitations of engaged time itself. A recent review of a wide range of proposals to increase school time carries some sobering implications for kindergarten. Karweit (1985) comprehensively examined studies dealing with allocated and engaged time. While not specifically referring to kindergarten, the general line of reasoning presented warrants our consideration. The proposition under review was whether allocating more time was a reasonable strategy for increasing achievement. Karweit quickly established that time <u>per se</u> is not the answer:

> Of the existing time that schools have available for instruction, there is evidence that an appreciable portion of the day is not spent by students actively engaged in learning (p.11).

Drawing on data from the influential Beginning Teacher Evaluation Study in 1980, an estimate for elementary grades was offered of 38% of the school day actually being engaged with academic instruction. Referring to data from an earlier study by herself, Karweit demonstrated that there are three aspects of time use: scheduled minutes,

instructional minutes, and engaged minutes. Scheduled minutes are the weekly minutes each teacher allots for instruction. Instructional time is the time left in scheduled time after classroom management time and interruptions are deducted. Classroom engaged time is the time left from instructional time once student inattention is deducted. Controlled observations of a range of classrooms show widely different patterns in the proportional amount of engaged time.

Karweit then returned to these studies in an attempt to more fully understand the role of engaged time and achievement as it is affected by student ability. By controlling for initial ability it was found that engagement is vastly reduced in its power to account for achievement outcomes. Statistically, it accounted for between 1 to 10% of the unique variance in such measures. The implication is offered verbatim:

> ...as researchers attempting to discover the critical elements of classroom practice, we must be clear about where the strong effects really lie. For a theory of classroom organization it is of considerable consequence that time-on-task is not so strongly associated with learning after ability is partialled out. We would argue that these findings point toward an explanation of classroom learning based more on accommodating student diversity in readiness for instruction and rate of learning and on quality of instruction than on the gross quantity of instruction delivered to or consumed by students. In other words, if time-on-task is not a strong factor influencing achievement, then we must consider how quality and level of instruction might influence learning. In addition, if time-on-task in and of itself is not a strong predictor of achievement, we need to seriously question the wisdom of enacting policies aimed at school improvement by sheer increases in instructional time (p.13).

This caution mirrors the repeated emphases in the preschool and kindergarten literature for well-planned, quality programs (Bronfenbrenner, 1975; Naron, 1981; Lazar,et al, 1982; Berrueta-Clement, et al, 1984). It is stressed in the present context to encourage program developers to examine time use in a somewhat different light. Time creates the opportunity for things to happen. It is a mediator

much in the same sense as class size. Naron's simple statement bears repeating: "It is the way time is used that is important" (1981, p.108).

## Summary

This article has reviewed and critiqued the research literature on full and extended-day, every-day versions of kindergarten. Attention has been drawn to methodological difficulties pervading the subject, and general weaknesses have been identified. The proposition is presented that the field is seriously in need of accepting basic research prerequisites and minimum reporting standards.

The broad range of program effects associated with full and extended day kindergarten were reviewed independently. These included basic academic skills; social, emotional, and developmental considerations; staff reaction; parent reaction; attendance; socioeconomic or ability level differences; support service referrals and grade retentions; follow-up studies; financial considerations; enrollment benefits, and time schedules.

Where possible, integration of work was attempted and areas particularly in need of extended research were cited.

Discussion of the subject included notation of the spirit of promise and potential association with this work, suggestions for advancing further integration and understanding of this general area, as well as observations dealing with the evolving redefinition of the role of kindergarten, and examination of the basic question of the value of extending instructional time as a major strategy to increase student performance.

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